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COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION

The Commonwealth Scientific and Industrial Research Organization (C.S.I.R.O.) is Australia's largest civil scientific body. Established as the Council for Scientific and Industrial Research (C.S.I.R.) in 1926, it was re-organized in 1949 under the Science and Industry Research Act and now has a staff of more than 5,500 including some 1,700 professional scientists. An account of the organization and work of the former Council, and the earlier Commonwealth Institute of Science and Industry from which the Council was formed, was given in earlier issues of the Official Year Book. (See No. 14, p. 1061 and No. 37, p. 1183.)

The principal function of C.S.I.R.O. is to carry out scientific research for the primary and secondary industries of the Commonwealth and its Territories. C.S.I.R.O. does not conduct defence research, medical research or atomic energy research. The other powers and functions of C.S.I.R.O. as defined in the Science and Industry Research Act of 1949, include:

- the training of scientific research workers and the awarding of scientific research studentships and fellowships;
- the making of grants in aid of pure scientific research;
- the recognition or establishment of associations of persons engaged in any industry, for the purposes of carrying out industrial scientific research and the co-operation with, and the making of grants to, such organizations;
- the testing and standardization of scientific apparatus and instruments and the carrying out of scientific investigation connected with standardization;
- the collection and dissemination of information relating to scientific and technical matters;
- the publication of scientific and technical reports, periodicals and papers.

Before 1939 C.S.I.R. was engaged largely in research into problems of primary industry, in particular, plant and animal diseases and nutrition, soils, pasture improvement, insect pest control, usage of Australian timbers, food processing, and fisheries. Since 1939 an extensive programme of wool research has been developed and research has been extended into the physical and engineering sciences with particular reference to international standards, radiophysics, various aspects of chemistry, metal physics, meteorological research, mineral processing, building research, dairy products research, engineering research, and coal utilization.

Organization

C.S.I.R.O. is a statutory corporation operating under its own Act of Parliament and exercising its powers subject to the regulations and the approval of the Minister. The Minister responsible for the Act is the Prime Minister, but he has delegated this responsibility to the Minister-in-charge of

Commonwealth Activities in Education and Research.

The governing body of the Organization is the Executive, which consists of nine members appointed by the Governor-General. There are five full-time members, one of whom is Chairman, And four part-time members. At least five of the members must possess scientific qualifications. The Executive is responsible to the Minister for the policy and the work of the Organization.

other universities. This was made financially possible by increased grants from the Commonwealth. Until 1936 only small ad hoc research grants had been made to the universities. In 1936 a five-year program was inaugurated by which £30,000 (\$60,000) was spent annually on grants for research in the physical and biological sciences. This figure had grown to £100,000 (\$200,000) in 1950, after which the amount was absorbed in the new system of Commonwealth grants to the States for university purposes. In 1957 the report of the Committee on Australian Universitiy (the Murray Report) recommended increases in research funds, and drew attention to the small number of post-graduate students. A further increase was approved in 1963, following the second report of the Australian Universities Commission, and in 1965 the Commonwealth established the Australian Research Grants Committee to administer the awards.

The growth of university research is reflected in the increase of post-graduate Studies. The Ph.D. degree was introduced into Australia only after the second world war, and the first such award was made by the University of Melbourne in 1948. From then until 1964 more than 1,000 Ph.D.'s were awarded in mathematics, science and engineering, and more than 150 Ph.D.'s are currently being awarded annually in these fields. More than one-quarter of all Ph.D. degree, awarded in this period have been in chemistry.

Research in the universities is mostly of a 'pure' or fundamental' character, although universities have also concerned themselves with 'applied' research directed to the solution of practical problems, e.g. in metallurgy, chemical industry, agriculture, and food Processing. A recent example of co-operation between a university and a State government agency was the investigation carried out by the University of Melbourne into the production of town gas from the lignite of the Yallourn-Morwell deposits in Gippsland, Victoria. In 1959 the University of New South Wales established Unisearch Ltd, with the purpose of assisting by research and other suitable means the advancement, development and practical application of science to industry and commerce.

Research by Government agencies

The post-war growth of C.S.I.R.O. has proceeded in both pure and applied science. Although increasing attention is being paid to industrial problems, the major impact of C.S.I.R.O. activities is still in the field of primary production. Research on pasture improvement, for example, is estimated to have brought about a doubling of the high-quality pasture in the decade 1948-58, and the successful programme of rabbit control that followed C.S.I.R.O.'s work on myxomatosis brought about a notable increase in the numbers of sheep during the same period. Apart from C.S.I.R.O., the research activities of other Commonwealth agencies have grown substantially since the war. These include the Weapons Research Establishment (set up in 1947) and other laboratories of the Department of Supply, all concerned with defence research and development. In 1954 the Atomic Energy Commission decided to set up its own research establishment at Lucas Heights, near Sydney. The Royal Australian Navy also maintains an experimental laboratory. Other agencies engaged in research include the Bureau of Meteorology, the Ionospheric Prediction Service, the Bureau of Mineral Resources, Geology and Geophysics, and various laboratories attached to the Commonwealth Health Department.

Research work by State Government agencies remains largely in the field of agriculture. In Queensland the great importance of the sugar industry is reflected in the work of the Bureau of Sugar Experiment Stations. Some coordination of research in agriculture is exercised through the

Standing Committee on Agriculture, a joint Commonwealth-State body. In recent years some interest has also been shown in problems related to power generation, public health and water supply.

Research in industry

Research in industry has also expanded, though not at the same rate as in Government agencies or the universities. Since 1955 several large firms have established their own central laboratories, and appreciable sums are being spent on research in the chemical, metals, sugar and paper industries.

Research in social sciences

Research in the social sciences has developed largely since the war. Before 1939 such work was virtually confined to anthropology and economics. The need for a much wider scale of activity was one of the motives for the establishment of the Australian National University, with a Research School of Social Sciences and a Research School of Pacific Studies. In 1952 the Social Science Research Council was established, with support from the Carnegie Corporation and the Commonwealth Government, to encourage the advancement of the social sciences, to foster research and to subsidise the publication of studies. The Institute of Applied Economic Research, supported by private funds, was set up at the University of Melbourne in December 1962, its work ranges from the economics of industry to the economics of welfare. In 1961 the Australian National University set up the New Guinea Research Unit, based in Port Moresby, which is carrying out a range of investigations into economic and social change in the Territory of Papua. Since its beginning in 1912 the Art Advisory Board has always consisted of artists. At present there are five members. As well as assisting the Historic Memorials Committee the board also advises the Government on the purchase of works of art for inclusion in the National Collection. In 1965-66, \$40,000 was provided for this purpose. The National Collection now contains over 1,000 works of art.

The Board, on behalf of the Government, also organizes and finances exhibitions of Australian art in overseas countries. In addition, it financially assists the showing in State Art Galleries of major exhibitions from abroad or assembled by one or more State Art Galleries. \$20,000 was provided in 1965-66 to meet the costs involved in these exhibitions.

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